### MARYLAND HISTORICAL TRUST

NR Eligible: yes DETERMINATION OF ELIGIBILITY FORM Property Name: SHA Bridge No.2201400, MD 347 over Quantico Creek Inventory Number: WI-340 Address: Ouantico Road (MD 347) Historic district: yes X no Zip Code: 21856 Wicomico City: Quantico County: USGS Quadrangle(s): Quantico Tax Account ID Number: Property Owner: State Highway Administration Tax Map Number: Tax Map Parcel Number(s): Project: Reevaluation of Highway Bridges Statewide Agency: FHWA/MD SHA Agency Prepared By: KCI Technologies, Inc. Preparer's Name: Alison Ross Date Prepared: 10/16/2009 Documentation is presented in: Project Review and Compliance Files X Eligibility recommended Eligibility not recommended Preparer's Eligibility Recommendation: Criteria: A B X C D Considerations: A B C D E F G Complete if the property is a contributing or non-contributing resource to a NR district/property Name of the District/Property: Quantico Historic District Inventory Number: WI-391 Listed: yes Eligible: X yes yes Site visit by MHT Staff Name: Date: no Description of Property and Justification: (Please attach map and photo) Bridge No. 2201400 (MIHP No. WI-340) is a single-span, 2-lane, concrete slab bridge carrying MD 347 (Quantico Road) over Quantico Creek in Wicomico County. Constructed in 1926, the bridge sits on two concrete abutments with flared concrete wingwalls. The parapets are of solid concrete, with incised panels. The bridge is located just south of, not within, the town of Quantico, an NRHP-eligible Historic District (determined eligible August 2000, MIHP No. WI-391), with wooded land on the south and the town's residential properties to the north. The 2006 Average Daily Traffic (ADT) count is 1,061, and the 2026 future ADT count is 1,223. The road's function class is Rural Major Collector. Background The first evaluation of SHA Bridge No. 2201400 was completed in 1995, for which a Maryland Inventory of Historic Properties (MIHP) form was completed. The Interagency Historic Highway Bridge Inventory Committee (HHBIC) considered the MIHP form in 1996 and subsequently determined Bridge No. 2201400 to be eligible for the National Register of Historic Places (NRHP) under Criterion C as a significant example of concrete slab MARYLAND HISTORICAL TRUST REVIEW Eligibility recommended Eligibility not recommended

Criteria: A B C D Considerations: A B C D E F G MHT Comments: Information purgoses only-Bridge remains NR-engible Jan January 5/14/2010 Reviewer, Office of Preservation Services Date Reviewer, National Register Program

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construction and a representative example of a State Roads Commission standardized design. The form also stated that the bridge has a high degree of integrity of its CDEs. The Maryland Historical Trust (MHT) concurred with the determination in 2001.

SHA Bridge No. 2201400 was re-evaluated for NRHP eligibility as part of the 2009 statewide re-evaluation of the eligible bridges in SHA's Historic Highway Bridge Inventory. SHA requested that KCI conduct research to gather information and provide additional analysis of each of the bridge's integrity and significance to supplement the original NRHP evaluation. As part of the re evaluation, a KCI historian conducted research at SHA's Office of Structures (OOS) to gather additional information on the bridge including alterations and repairs that have been made to the structure between the years of 1995 to 1998. The following document were reviewed by the KCI architectural historian: inspection files, repair history files, bridge plans, the Bridge Inspection and Remedial Engineering (BIRE) Worklist, and the Structure Inventory and Appraisal (SI&A) reports. A KCI architectural historian visited the bridge to examine and document current conditions with field notes, digital photography, and black and white photography. In order to re-evaluate the bridge's historic significance and NRHP eligibility, the following documents were used: the original MIHP form, Historic Highway Bridges in Maryland: 1631-1960: Historic Context Report and A Context for Common Historic Bridge Types, NCHRP Project 25-25, Task 15.

#### Evaluation and Justification

The Bridge Sufficiency Rating is 75.9. Condition ratings have remained relatively high on this bridge. From 1997 through 2005, the bridge received condition ratings of 7 for the deck, superstructure, and substructure. In 2007, however, the ratings for the deck and superstructure were decreased from 7 to 6. No inspection reports were available for the years 1995 through 1998.

Examination of later inspection reports shows that there have been few repairs to the bridge and some minor areas of deterioration Field survey has shown that the superstructure has several areas of deterioration, including a crack at the centerline of the soffit ar small cracks at the exterior edges of the soffit. The eastern fascia has horizontal cracking with some efflorescence and staining where the deck meets the parapet.

During field survey, observations included chipped curbs and minor spalling on the parapet endcaps at the guardrail connections and in some areas of the parapet cap. Bolts attaching the guardrail to the parapet are visible on the parapets' exterior.

In 1993, there were repairs to the abutment undermining, with installation of grout bags to preserve the abutments from further scouring (as evidenced by the 1992 construction drawings). Field survey by the historian found that the southeastern wingwall was patched at the top where it meets the superstructure.

Despite the above-mentioned necessary repairs, there has been little deterioration and alteration to the bridge, the largest of which has been the installation of the guardrail across the interior parapet face. The incised panel design on the parapets is still intact on both faces of both parapets. There is no patching of the fascia covering the panel design on the exterior of the parapets, and, unlike many bridges of this age, the incised panels on the interior of the parapets remain visible above the level of the asphalt. In addition the incising of the panels remains sharp, unlike that on other bridges, whose decorative panel profiles have been flattened by scale concrete and chipping due to damage or deterioration. The guardrail has not been installed across the entire parapet, obscuring the panel design, but instead stops at the end panel at all for endcaps. Therefore, the parapets retain a high degree of integrity of design, workmanship, and material. The repair to the abutment was done in a sympathetic fashion. Except for one extant crack on top of the southeastern wingwall, the concrete on both sides of the parapet walls, both abutments and on the wingwalls is in very good condition for the age of the bridge. The I

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MHT Co	Review	er, Offic	ee of Pre	servatio	on Services	-		Date			*:	
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WI-340

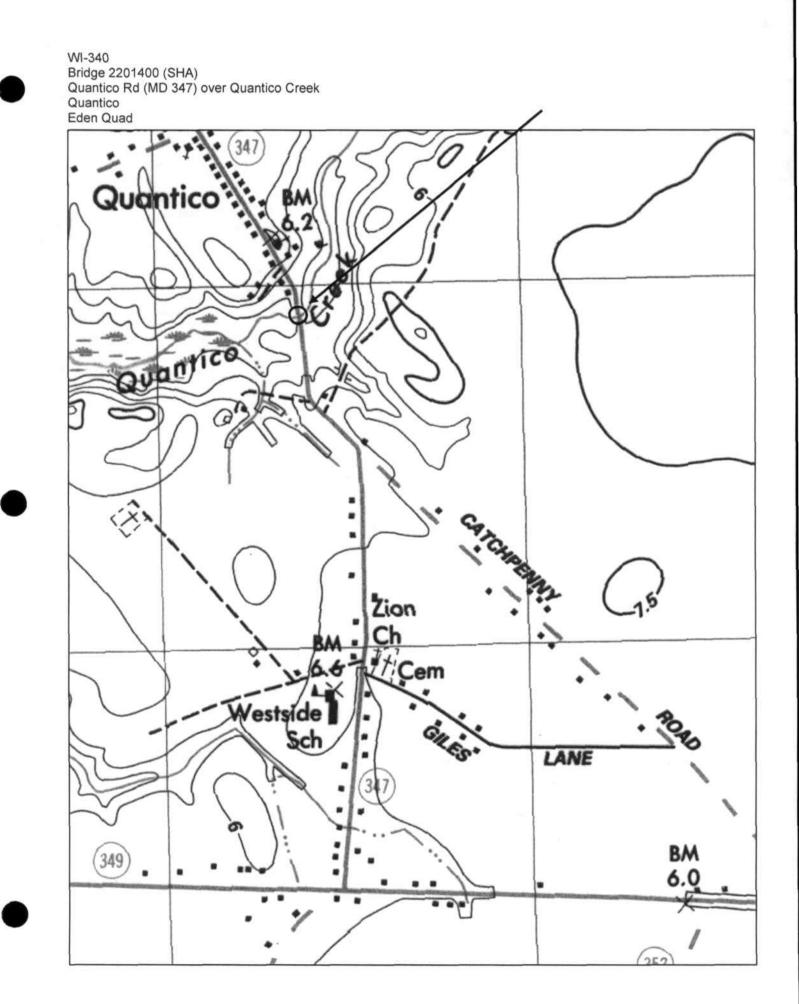
Page 3

integrity of the bridge's location, setting, and feeling remains high. Although just outside of the eligible historic district of Quantico, the bridge is clearly associated with the village and provides access from the south directly to the community.

This re-evaluation agrees with the original evaluation and recommends that SHA Bridge No. 2201400 is individually eligible for the NRHP under Criterion C as a good, intact example of the 1924 standard plans for a simple-span concrete slab bridge, in good physical condition, and with a high degree of historic integrity. It has not been widened and remains its original width of 24 feet. Although it was excluded from the Quantico Historic District (MIHP No. WI-391) when the district boundaries were drawn in 1999, it is now suggested that the bridge would be a contributing resource to the historic district if the boundaries were extended to the southern side of Quantico Creek to include the bridge. The construction of the bridge falls within the period of significance of the district, which is 1700 to 1950. The district is eligible under Criterion A for its significance as a small, rural crossroad village where road, water, and railroad transportation met and also under Criterion C for its architecture. Since it carried the main road from the south and was a means of entry into the rural crossroad community, SHA Bridge No. 2201400 would be a significant contributing resource to the district.

Additional research indicates that the bridge is not associated with any known person of local, regional, or national significance (Criterion B). Criterion D was not evaluated as part of the historic standing structures studies for this project.

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MIHP No. WI-340 SHA Bridge No. 2201400 MD 347 (Quantico Road) over Quantico Creek Wicomico County, Maryland

#### Photograph Log

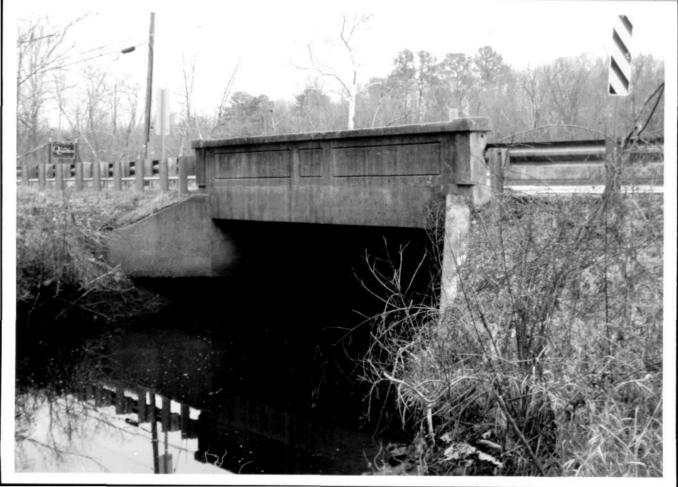
Image File Name	Description of View				
WI-340_2009-01-13_01.tif	Eastern elevation, facing northwest				
WI-340_2009-01-13_02.tif	Western elevation, facing northeast				
WI-340_2009-01-13_03.tif	Interior of western parapet, northwest end panel, facing west				
WI-340_2009-01-13_04.tif	Southwestern wingwall, facing east				
WI-340_2009-01-13_05.tif	Northwestern wingwall and northern abutment, facing north				
WI-340_2009-01-13_06.tif	Northern approach and Quantico Historic District, facing north from bridge				

Printed on Epson Premium Photo Paper Glossy with Epson UltraChrome Black Ink

Saved on Verbatim UltraLife Archival Grade DVD-R, AZO recording dye



MIHP WI-340 SHA Bridge No. 22014 00, MD 347 (Quantica R4) over quantica Wicanuca Ca, mp James Stock 1/13/2009 MD SHPO E. elev.; Facing NW #10+6



MIHP WI-340 SHA Bridge No. 220 1400, MD 347 CQuantica Rd) over Quantica Cr. Vicamica Ca, mo James Skocik 1/13/2009 MD SHPO

W. elev., facing NE # 20f6



MIHP WI - 340 SHA Bridge No. 2201400 MD 347 (Quantica Rd) over Quantica Vicanica Co, mD James Skoak 1/13/2009 MD SHPD Interior of w parapet, NW end # 3 of 6



MIHP WI-340 SHA Bridge No. 221400, MD 347 (Quantico Pd) over Quantica Miconica Co., MID James Skoak 1/13/2009 MD SHPO

MD SHPO' SW Wingwall, facing E #4 of 6



MTHP WI-340 SHA Budge No. 220400, MD 347 (Quantico Rd.) over Quantica Miconicala, MD James Skocik 1/13/2009 MD SHPO NW wing wall x N abutment Facing N # 5 of 6



MIHP WI-340 SHA Bridge No. 2201400, MD 347 (Quantica Rd.) over Quantica Wicomica Co., MD. dames Skocik 1/13/2009 MD SHPO Napproach and Quantica, H. A. facing N from bridge

#### Maryland Historical Trust

Maryland Inventory Name: 220	of His	toric Pro	operties number: W	1-	BU	10.	14	0 (	Jaz	EE	
Historic Bridge Inve	entory, the His	and SH toric Br	nventoried by the Mary A provided the Trust wi idge Inventory on April	th elig	ibility	detern	ninatio	ns in	Febru	ary 20	001.
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	-		D Considerations:								
Comments:	_В _		D Considerations.		в_				_r_	_0_	_None
Reviewer, OPS:_Ar	ine E. I	Bruder_		100 11		Dat	e:3	April	2001_	_	
Reviewer, NR Program:Peter E. Kurtze						Dat	e:_3 /	April :	2001_		

MHT No. WI-340

# MARYLAND INVENTORY OF HISTORIC BRIDGES HISTORIC BRIDGE INVENTORY MARYLAND STATE HIGHWAY ADMINISTRATION/MARYLAND HISTORICAL TRUST

SHA Bridge No. 22014 Bridge name MD 347 over Quantico Creek
LOCATION: Street/Road name and number [facility carried] MD 347 (Quantico Road)
City/town Quantico Vicinity
County Wicomico
This bridge projects over: Road Railway Water _X Land
Ownership: State X County Municipal Other
HISTORIC STATUS:  Is the bridge located within a designated historic district? Yes No _X  National Register-listed district National Register-determined-eligible district  Locally-designated district Other
Name of district
BRIDGE TYPE: Timber Bridge: Beam Bridge: Truss -Covered Trestle Timber-And-Concrete
Stone Arch Bridge  Metal Truss Bridge
Movable Bridge: Swing Bascule Single Leaf Bascule Multiple Leaf Vertical Lift Retractile Pontoon
Metal Girder:  Rolled Girder:  Plate Girder:  Rolled Girder Concrete Encased:  Plate Girder:
Metal Suspension
Metal Arch
Metal Cantilever
Concrete X:  Concrete Arch Concrete Slab X Concrete Beam Rigid Frame Other Type Name

DESCRIPTION: Setting: Urban Small town X Rural
Describe Setting:
Bridge No. 22014 carries MD 347 (Quantico Road) over Quantico Creek in Wicomico County. MD 347 runs north-south and Quantico Creek flows east-west. The bridge is located in the town of Quantico and is surrounded by woods to the south and residential properties to the north.
Describe Superstructure and Substructure:
Bridge No. 22014 is a single-span, 2-lane, concrete slab bridge. The bridge was originally built in 1926. The structure is 23 feet long and has a clear roadway width of 24 feet. The out-to-out width is 26 feet, 8 inches and the concrete slab has a bituminous wearing surface. The structure has solid panel concrete parapets and the roadway approaches have steel guard rails. The substructure consists of two (2) concrete abutments and there are flared, concrete wing walls. The bridge has a sufficiency rating of 76.2.
According to the 1996 inspection report, this structure is in good condition. The concrete abutments have fine map and vertical cracks with minor popouts and minor chipping. The wing walls have fine map and horizontal cracking and light efflorescence. The concrete parapet has fine map cracks and minor spalling at all guard rail connections.
Discuss Major Alterations:
Bridge 22014 has had no major alterations.
AMCMODY.
HISTORY:
WHEN was the bridge built: 1926  This date is: Actual X Estimated  Source of date: Plaque Design plans County bridge files/inspection form Other (specify): State Highway Administration bridge files/inspection form
WHY was the bridge built?
The bridge was constructed in response to the need for a more efficient transportation network and increased load capacity.
WHO was the designer?
Unknown
WHO was the builder?
Unknown
WHY was the bridge altered?

N/A

#### Was this bridge built as part of an organized bridge-building campaign?

There is no evidence that the bridge was built as part of an organized bridge building campaign.

#### SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have Nation	nal Register significa	nce for its associati	on with:
A - Events	B- Person		
C- Engineering/archi	tectural character	X	

The bridge is eligible for the National Register of Historic Places under Criterion C, as a significant example of concrete slab construction and a good representative example of a State Roads Commission standard plan design. The structure has a high degree of integrity and retains such character-defining elements of the type as the concrete slab and integral parapets, concrete abutments, and wing walls.

#### Was the bridge constructed in response to significant events in Maryland or local history?

Reinforced concrete slab bridges are a twentieth century structure type, easily adapted to the need for expedient engineering solutions. Reinforced concrete technology developed rapidly in the early twentieth century with early recognition of the potential for standardized design. The first U.S. attempt to standardize concrete design specifications came in 1903-1904 with the formation of the Joint Committee on Concrete and Reinforced Concrete of the American Society of Civil Engineers.

Maryland's roads and bridge improvement programs mirrored economic cycles. The first road improvement of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916-1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920-1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads which moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic, with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of \$3,000,000.00 for road construction; the primary purpose of these monies was to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund (with an equal sum from the counties) the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had been inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930's. Most improvements to local roads waited until the years after World War I.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer, stated in 1906, "the general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do away with the further expense of the maintenance of expensive and dangerous wooden structures." Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

In 1930, the roadway width for all standard plan bridges was increased to 27 feet in order to accommodate the increasing demands of automobile and truck traffic (State Roads Commission

1930). The range of span lengths remained the same, but there were some changes designed to increase the load bearing capacities. The reinforcing bars increased in thickness. Visually, the 1930 design can be distinguished from its predecessors by the pierced concrete railing that was introduced at this time.

In 1933, a new set of standard plans were introduced by the State Roads Commission. This time their preparation was not announced in the Report; new standard plans were by this time nothing special - they had indeed become standard. Once again accommodating the ever-increasing demands of traffic, the roadway was increased, this time to 30 feet. The slab span's reinforcing bars remained the same diameter but were placed closer together to achieve still more load capacity.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

There is no evidence that the construction of this bridge had a significant impact on the growth and development of this area.

Is the bridge located in an area which may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?

A sign in the vicinity of the bridge indicates the existence of the Quantico Historic District; research at the Maryland Historical Trust failed to identify such a district. If a district does exist in Quantico, however, this structure, which is a good example of a concrete slab bridge, would contribute to the character of the potential district.

Is the bridge a significant example of its type?

The bridge is a good example of the State Roads Commission standard bridge plan, which possesses a high degree of integrity.

Does the bridge retain integrity of important elements described in Context Addendum?

The bridge retains the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including the concrete slab and integral parapets, abutments and wing walls.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?

This bridge is a significant example of the work of the State Roads Commission in the 1920s.

Should the bridge be given further study before an evaluation of its significance is made?

Further study is required to determine the status of the Quantico Historic District, including if it has been evaluated for its significance and the location of the district boundary with relation to the bridge.

BIBLIOGRAPHY:		
County inspection/bridge files	SHA inspection/bridge files	X

Ketchum, Milo S.

- 1908 The Design of Highway Bridges and the Calculation of Stresses in Bridge Trusses. The Engineering News Publishing Co., New York.
- 1920 The Design of Highway Bridges of Steel, Timber and Concrete. Second edition. McGraw-Hill Book Company, New York.

Lay, Maxwell Gordon

1992 Ways of the World: A History of the World's Roads and of the Vehicles That Used Them. Rutgers University Press, New Brunswick, New Jersey.

Maryland State Roads Commission

- 1930a Report of the State Roads Commission for the Years 1927, 1928, 1929 and 1930. State of Maryland, State Roads Commission, Baltimore.
- 1930b Standard Plans. State of Maryland, State Roads Commission, Baltimore.

Taylor, Frederick W., Sanford E. Thompson, and Edward Smulski

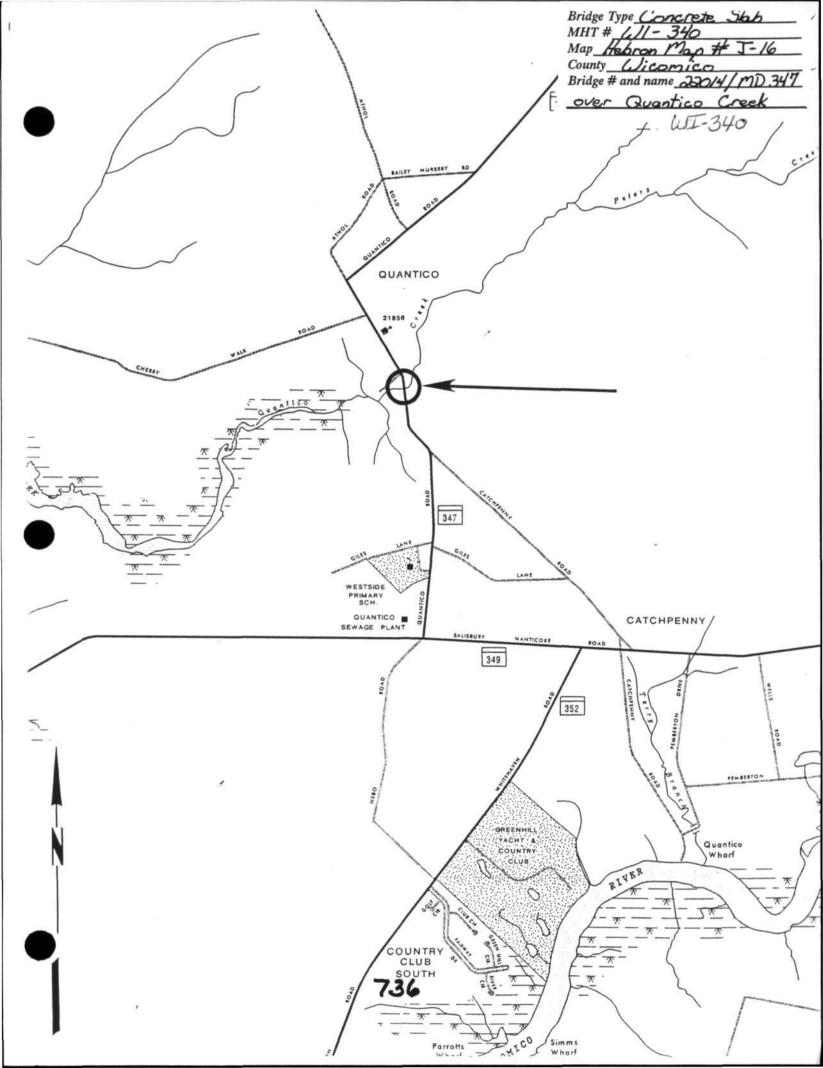
1939 Reinforced-Concrete Bridges with Formulas Applicable to Structural Steel and Concrete. John Wiley & Sons, Inc., New York.

Tyrrell, H. Grattan

1909 Concrete Bridges and Culverts for Both Railroads and Highways. The Myron C. Clark Publishing Company, Chicago and New York.

#### **SURVEYOR:**

Date bridge recorded	2/25/97	
Name of surveyor _ Carolin	ne Hall	
Organization/Address P.A.	C. Spero & Co., 40	W. Chesapeake Avenue, Baltimore, MD 21204
Phone number(410) 296-16	585	FAX number (410) 296-1670



## INDIVIDUAL PROPERTY/DISTRICT MARYLAND HISTORICAL TRUST INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Bridge #22014 Survey Number: WI - 340
Project: MD 347 over Quantico Cr., Wicomico County Agency: SHA
Site visit by MHT Staff: X no yes Name Date
Eligibility recommended Eligibility not recommended _X_
Criteria:AB X_CD Considerations:ABCDEFGNone
Justification for decision: (Use continuation sheet if necessary and attach map)
Based on the information provided by SHA, Bridge #22014, a 1924 single span concrete slab structure, does not meet the National Register criteria for individual listing. It is a common bridge type of no particular engineering significance. Approximately 100 bridges of the type were constructed on the State roads system by 1924. Furthermore, the bridge is not located in any known district.
Documentation on the property/district is presented in: Project files
Preparedby: RitaSuffness
Elizabeth Hannold April 22, 1992 Reviewer, Office of Preservation Services Date
NR program concurrence: X yes no not applicable  Audulus  Reviewer, NR program Date

TOT

Survey No. COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT MARYLAND I. Geographic Region: (all Eastern Shore counties, and Cecil) Eastern Shore (Anne Arundel, Calvert, Charles, Western Shore Prince George's and St. Mary's) Piedmont (Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery) (Allegany, Garrett and Washington) Western Maryland Chronological/Developmental Periods: II. Paleo-Indian 10000-7500 B.C. 7500-6000 B.C. Early Archaic 6000-4000 B.C. Middle Archaic 4000-2000 B.C. Late Archaic Early Woodland 2000-500 B.C. 500 B.C. - A.D. Middle Woodland A.D. 900-1600 Late Woodland/Archaic A.D. 1570-1750 Contact and Settlement A.D. 1680-1815 Rural Agrarian Intensification Agricultural-Industrial Transition A.D. 1815-1870 Industrial/Urban Dominance A.D. 1870-1930 A.D. 1930-Present Modern Period Unknown Period ( \_\_\_ prehistoric \_\_\_ historic) III. IV. Historic Period Prehistoric Period Themes: Themes: Agriculture Subsistence Landscape Architecture, Settlement Architecture, and Community Planning Economic (Commercial and Industrial) Political Demographic Government/Law Religion Military Technology Religion Adaption Social/Educational/Eultural Environmental Transportation Resource Type: Category: Structure Environment: rural Historic Historic Function(s) and Use(s): transportation

Known Design Source:

unknown

WI-340



1. W1.340 2. MD 249 over Quantico Creek (22014) 3. Wicomico Co., Md. 4. Caroline Hall 5.3/97 6. MDSHPD 7. west side 8.10fle



1. WI-346 2 NO 347 over Quartice (2014) 3. Wicomico Co., Md. 4. Caroline Hall 5.3/97 6. MDSHPD 7. roadway approach 8.2016



1.001-340 2. MD 347 over Quantice (reek 22014) 3. Wicomico Co, Md. 4 Caroline Hall 5.3/97 6. MDSHPO 7. roadway approach 8.3016



1. WI 340 2. MD 347 over Quartice (rec 1 (22014) 3 Wicomico Co. Md. 4. Caroline Hall 5.3/97 6. MDSHOD 7. last side 8.4066



1. WI-340 2. MD 347 over Quartico (rest 225) 3. Wicomico Co., md. 4. Caroline Hall 5.3/97 6. MDSHPD 7. West parapet 8.5066



1. WI 340 2. MD 347 OVER Quanta Creek (22014) 3. Wicomico Co, Md. 4. Caroline Hall 5.3/97 6. MDSHPD 7. last parapet 8. le of 6